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Filed : April 13, 2001

REMARKS

The January 3, 2002 Office Action was based upon pending Claims 8-14. By this Amendment, Applicants amend Claims 8, 9 and 13 and add new Claim 15. Thus, after entry of this Amendment, Claims 8-15 are pending and presented for further consideration. In view of the amendments and the following remarks, Applicants respectfully submit that Claims 8-15 are patentably distinguished over the cited references. Applicants respectfully request the Examiner to pass Claims 8-15 to allowance.

The specific changes to the specification and the claims are shown on a separate set of pages attached hereto and entitled **VERSION WITH MARKINGS TO SHOW CHANGES MADE**, which follows the signature page of this Preliminary Amendment. On this set of pages, the insertions are underlined while the ~~deletions are struck through~~.

Objections to the drawings

The Examiner objects to the drawings because Figures 1a-1c are not labeled as prior art, and because of failing to show reference number 4 in Figure 2. Applicants have labeled Figures 1a-1c as prior art and have added reference number 4 to Figure 2. No new matter has been added.

Objections to the specification

The Examiner objects to the specification because the description refers to Claim 1. Applicants have amended the description to overcome the objections.

Objections to the claims

The Examiner objects to Claim 13 because of informalities. Applicants have amended Claim 13 to overcome the objections.

Claim rejections under 35 U.S.C. §103(a)

The Examiner rejects Claims 8, 9 and 12 as being unpatentable over Ozawa (U.S. Patent No. 5,474,410) in view of Iwasawa (U.S. Patent No. 4,867,629). Further, the Examiner rejects Claim 10 as being unpatentable over Ozawa in view of Iwasawa and further in view of Prentakis

(U.S. Patent No. 4,775,281), and Claim 11 as being unpatentable over Ozawa in view of Iwasawa, and further in view of Rush (U.S. Patent No. 5,193,969). Furthermore, the Examiner rejects Claim 13 as being unpatentable over Iwasawa in view of Ozawa, and Claim 14 as being unpatentable over Iwasawa in view of Ozawa and further in view of Rush. For the reasons set forth hereinafter, Applicants respectfully submit that the cited references fail to disclose or to suggest each and every limitation recited in Claims 8-14 and respectfully requests the Examiner to pass Claims 8-14 to allowance.

As to independent apparatus Claim 8, the Examiner asserts that Ozawa discloses a wafer process system having a housing, a part for receiving wafer cassettes, a wafer handling device adapted to move wafers between cassettes. The Examiner finds that Ozawa does not disclose a store for cassettes or a device for moving cassettes, and cites Iwasawa as teaching a store for cassettes in a housing with a cassette handling device for moving cassettes between a storage chamber and a transfer location. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to combine the Iwasawa's cassette store and transfer device with Ozawa's wafer transfer device. Applicants respectfully disagree with the Examiner's conclusion and respectfully request the Examiner to reconsider the rejection in view of the following arguments.

In order to provide a *prima facie* showing of obviousness, the Patent and Trademark Office has the burden to provide a motivation, teaching, or suggestion to create the claimed invention. *See, e.g., In re Fine*, 5 U.S.P.Q.2d 1597 (Fed. Cir. 1988). Moreover, the evidence to prove the motivation, teaching, or suggestion must be clear and particular and can flow from three sources: (1) the prior art references themselves, (2) the knowledge of one of ordinary skill in the art, or (3) from the nature of the problem to be solved. *See In re Dembiczak*, 175 F.3d 994, 999 (Fed Cir. 1999).

In the case of the presently claimed invention, Applicants respectfully submit that none of these evidentiary sources exist to provide such a motivation, teaching or suggestion. First, the prior art references themselves do not disclose a device in which, for example, a store and a handling device are arranged in a housing, even if the references are combined. Second, those of ordinary skill in the art would not be motivated to arrange, for example, a store and a handling

device in a housing in view of this non-disclosure in the prior art. And third, the nature of the problem to be solved in the prior art does not suggest a motivation to arrange, for example, the store and the handling device in a housing as one functional unit.

More particularly, Ozawa teaches a wafer process system that does not include a store for cassettes and does not include a cassette handling device. Further, Ozawa does not teach a need for a store for cassettes.

Iwasawa teaches a store for cassettes having a cassette handling device. The cassette handling device transports a cassette to a process apparatus (column 6, lines 56-59). Apart from this short sentence in the specification, Iwasawa does not disclose any further details regarding the transport to the process apparatus.

Thus, Ozawa and Iwasawa disclose two separate apparatuses that are used independently from each other. Absent impermissible hindsight, neither Ozawa nor Iwasawa provides any suggestion that one apparatus is to be used with the other. Hence, even a combination of Ozawa and Iwasawa does not disclose or suggest each and every limitation of independent Claim 8. Claim 8 is therefore patentable over Ozawa and Iwasawa.

However, to expedite examination and allowance of this application, Applicants have amended Claim 8. Claim 8 as amended defines a device for sorting wafers stored in cassettes that includes, among others, a housing, a wafer handling device arranged in a chamber to be sealed off with respect to the housing, a part for receiving cassettes arranged in the housing, a store for closable cassettes arranged in the housing, and a handling device for closable cassettes arranged in the housing. For the reasons set forth above with respect to Claim 8, Applicants respectfully submit that Claim 8 as amended is patentably distinguished over Ozawa and Iwasawa. Applicants respectfully request the Examiner to pass Claim 8 as amended to allowance.

In rejecting Claims 10 and 12, the Examiner cites further Prentakis and (P)sh, respectively. Prentakis discloses a wafer alignment device for measuring the angular orientation. Rush discloses a turntable for receiving three cassettes. However, only one cassette can be in active connection with the wafer handling device. Prentakis and Rush, therefore, provide no

suggestion that would render the subject matter of Claims 8, 10 and 12 obvious in view of Ozawa and Iwasawa.

Furthermore, Claims 9-12 depend from independent Claim 8 and further define the invention defined in Claim 8. Applicants respectfully submit that Claims 9-12 are patentably distinguished over Ozawa and Iwasawa for the same reasons set forth above with respect to independent Claim 8 and because of the additional inventive features recited in Claims 9-12. Applicants have amended Claim 9 to be consistent with Claim 8 as amended. Claim 9 as amended defines that the device is configured for sorting wafers stored in FOUPs. Applicants respectfully request the Examiner to withdraw the rejection of Claims 9-12 and to pass Claims 9-12, as amended, to allowance.

As to independent method Claim 13, the Examiner asserts that Iwasawa discloses the steps of placing at least a first and second cassette in active connection with a cassette handling device, and employing a cassette handling device to select and move a first and a second cassette from the store to a transport station in an independent manner. The Examiner states that Iwasawa does not disclose moving the cassettes from one cassette to the other, and cites Ozawa as disclosing the steps of placing a first and second wafer cassette into a wafer handling chamber and employing a wafer handler to transfer wafers from one cassette to the other. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to combine the wafer handling method taught by Ozawa with the cassette handling method taught by Iwasawa to have a combined method that is controlled by a unitary controller and doing away with any intermediary steps.

Applicants respectfully disagree with the Examiner's conclusion and respectfully request the Examiner to reconsider the rejection in view of the arguments set forth above with respect to Claim 8. Absent impermissible hindsight, neither Ozawa nor Iwasawa provides any suggestion that one apparatus is to be used with the other. Hence, even a combination of Ozawa and Iwasawa does not disclose or suggest each and every limitation of independent Claim 13. Claim 13 is therefore patentable over Ozawa and Iwasawa.

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However, to expedite examination and allowance of this application, Applicants have amended Claim 13. Claim 13 as amended defines a method for assembling a batch of wafers in cassettes, wherein least a first and a second closed cassette are placed in a store, and a cassette handling device is employed to select and move the first cassette from the store to a sorting operation. The first cassette is opened and placed in active connection with a wafer handling device in a chamber. A cassette handling device is employed to select and move a second cassette from the store to a sorting operation. The second cassette is opened and placed in active connection with the wafer handling device in the chamber. Further, the wafer-handling device is employed to sort the wafers by transferring wafers between the first cassette and second cassettes, wherein the chamber is sealed. For the reasons set forth above, Applicants respectfully submit that Claim 13 as amended is patentably distinguished over Ozawa and Iwasawa. Applicants respectfully request the Examiner to pass Claim 13 as amended to allowance.

Claim 14 depends from independent Claim 13 and further defines the invention defined in Claim 13. Applicants respectfully submit that Claim 14 is patentably distinguished over Ozawa and Iwasawa for the same reasons set forth above with respect to independent Claim 13 and because of the additional inventive features recited in Claim 14. Applicants respectfully request the Examiner to withdraw the rejection of Claim 14 and to pass Claims 13 and 14, as amended, to allowance.

New Claim 15

New Claim 15 is patentably distinguished for the same reasons set forth above. Applicants respectfully request the Examiner to pass Claim 15 to allowance.

CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

Any claim amendments which are not specifically discussed in the above remarks are not made for patentability purposes and it is believed that the claims would satisfy the statutory

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requirements for patentability without entry of such amendments. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning on page 1, line 3, has been amended as follows:

The present invention relates to a device for sorting wafers ~~according to the preamble of Claim 1.~~

The paragraph beginning on page 2, line 11, has been amended as follows:

The object of the present invention is to provide a sorting/storage/measuring device which is easier and less expensive to produce and in which, ~~moreover~~, the surface area required for the device can be limited without, ~~however~~, reducing the throughput capacity. In addition, the flexibility is to be enhanced. ~~The device as described above having the characterizing features of claim 1.~~ In one embodiment, the device for sorting wafers stored in cassettes includes, among others, a housing, a wafer handling device arranged in a chamber to be sealed off with respect to the housing, a part for receiving cassettes arranged in the housing and separated from the chamber by a partition, a store for closable cassettes arranged in the housing, and a handling device for closable cassettes arranged in the housing.

As a result, the sorting options are considerably increased, due to the fact that all the cassettes in the storage device are available to the sorting device. In addition, the necessary measurements can also be carried out during sorting without the need for transportation to a separate measuring station. Consequently, the number of handling operations decreases and the capacity of the device can be increased while reducing the surface area required. If the wafers are supplied and stored in cassettes in pods provided with a standard door (SMIF, FOUP), fewer lock mechanisms are required than with the three or more separate housings according to the prior art. If certain types of wafer are always present in a specific cassette, it is possible, by changing cassettes of this nature into a different cassette which is present in the sorting device, to assemble a batch as desired. Naturally, it is also possible to arrange different types of wafers in a storage cassette, so that exchange in the sorting device is less frequent.

IN THE CLAIMS:

Claims 8, 9 and 13 have been amended as follows:

8. (Amended) A device for sorting wafers stored in cassettes comprising:

a housing;

a wafer handling device arranged in a chamber configured to be sealed off with respect to the housing;

a part for receiving at least two closable cassettes arranged in the housing and separated from said chamber by a partition, said part configured to position a received cassette against a closable opening in said partition, wherein through opening of said closable opening said closable cassette is opened and placed in communication with said chamber so that said wafer handling device can remove wafers from the cassette or position them therein;

~~a wafer handling device in communication with the wafers;~~

a store for closable cassettes arranged in the housing; and

a cassette/handling device for closable cassettes arranged in the housing, wherein the store for closable cassettes and the handling device for closable cassettes are separated from the part for receiving at least two cassettes, and wherein the wafer-handling device is adapted to transfer move the wafers between into and out of a first of the cassettes from and to a second of the cassettes and wherein the store for cassettes and the cassette/handling device are separated from the part for receiving at least two cassettes.

9. (Amended) The device of Claim 8, wherein the ~~wafer handling device~~ is ~~arranged in a chamber which can be sealed off with respect to the housing~~configured for sorting wafers stored in FOUPs.

13. (Amended) A method for assembling a batch of wafers in cassettes comprising the steps of:

placing at least a first and a second closed cassettes ~~in active connection with a wafer handling devices wherein the cassettes are positioned within in~~ a store;

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employing a cassette-handling device to select and move the first cassette from the store to a sorting operation, wherein the first cassette is opened and placed in active connection with a wafer handling device in a chamber;

employing a cassette-handling device to select and move ~~the~~ a second cassette from the store to ~~the~~ a sorting operation ~~independently from the first cassette,~~ wherein the second cassette is opened and placed in active connection with said wafer handling device in said chamber; and

employing ~~the~~ said wafer-handling device to sort the wafers by transferring wafers between the first cassette and second cassettes, wherein the chamber is sealed.